VI. *An Account and Abſtract of the* Meteorological Diaries *communicated to the* Royal Society, *for the Years* 1729 *and* 1730. *By* Geo. Hadley, *Eſq*; *F. R. S.*

THE Society having been pleas'd to refer to me, on the Death of Dr. *Derham*, the Meteorological Diaries tranſmitted to them from the curious Obſervers both at Home and in foreign Parts; as ſoon as they were put into my Hands, I apply'd myſelf to make an Abſtract of them in ſuch Manner as I judg'd may be moſt uſeful, and have nearly purſued the Method of Dr. *Derham*, beginning at the Year 1729, where he left off. [See theſe *Tranſactions*, N° 435.]

Before I proceed to the Tables, I think it proper to give ſome Account of each of the Diaries of theſe two Years, and their Contents, that any Member of the Society, that may have Occaſion to make farther Inquiries into theſe Matters, may be acquainted what is to be found therein, and what Pains have been beſtowed by the curious Obſervers.

The Diary kept by Mr. *Hauksbee*, by Order of the Society, at their Houſe in *Crane-Court*, conſiſts of Obſervations of the Barometrical Heights twice a Day, *i. e.* Morning and Evening, in Inches, Decimals and Centeſimals; the Thermometer likewiſe, in its proper Graduations, which, I ſuppoſe, are already well known to the Curious, and the Weather, with the Hour of each Obſervation. The Winds are omitted. The Depth of Rain is ſet down ſeveral times for the moſt part in each Month, the Sum of which is to be divided by 10, the Funnel which catches the Rain being ſo much bigger in Surface, than that of the Veſſel which receives the Rain from it.

That from *Southwick* near *Oundle* in *Northamptonſhire*, by *George Lynne*, Eſq; contains the Height of the Barometer once a Day, and the Winds, the Steadineſs and Strength of which is likewiſe mark'd with proper Marks and Figures. Obſervation is made of the upper and under Currents of the Air, when it ſo happen'd. The Thermometer is mark'd twice a Day; the Weather often, both by Day and Night; the Rain from time to time, and the Quantity of each particular Shower often ſet down by itſelf, with ſome other miſcellaneous Obſervations, as Haloes, Thunder-ſtorms, and ſudden Changes of Wind, *&c.* He takes Notice of his Thermometer being placed in an Out-houſe expos'd to the Air, but ſcreen'd from the Sun, which is a proper Precaution in uſing that Inſtrument. The remarkable Riſes and Falls of the *Mercury* are alſo mark'd with proper Marks; which Method would be uſeful in the other Columns alſo, for Compariſon of Diaries, if ſome certain Rule were agreed on.

That from *Kent*, 16 Miles South Eaſt from *London*, gives an Account of the Barometer once a Day, ſometimes twice or thrice, with the Hour of each Obſervation, and the Winds, Weather, and Rain, the Proportion of which for every Day, is given at the End of each Month. There is alſo a ſeparate Column for the Height of the Clouds, which he divides into three Orders; and where there are two Orders at a Time, they are both noted; as alſo when any of them move with different Velocities or Directions, which he ſuppoſes to be commonly a Sign of Change of the Wind: But he does not inform us by what Method he determin'd their Heights or Velocities. The reigning Wind, and general Strength of it, is noted at the End of each Month; the Eclipſes alſo, and the Times of the New Moons; which he obſerves make it appear, that the Notion of the Change of Weather depending on the Age of the Moon, is without any Ground: With other Miſcellaneous Obſervations; as the *Aurora Borealis*, Fruitfulneſs or Sterility of the Seaſon. He had no Thermometer.

That from *Hudickſvall* in *Sweden*, by Mr. *Olave Broman*, ſhews the Height of the Barometer ſometimes once, ſometimes twice or thrice a Day, *O. S.* in *Engliſh* Meaſure, with the Winds, and the Strength of them, and the Weather. There is alſo to the Diary 1729, annex'd an Account of the Height of the Sea-water for every Day, which I obſerve varies in the whole about two Inches, and is ſometimes interrupted by Floods from Rain. This, I ſuppoſe, may relate to the Tides in the Gulph of *Bothnia*. I have not inſerted theſe in the Tables, not being of general Uſe. There is no Thermometer, nor the Quantity of Rain, ſet down.

That from *Riſinge* in *Oſtrogothia* in *Sweden*, by *Sueno Laurelius*, Paſtor and Provoſt, gives the Height of the Barometer for the moſt part three times, ſometimes five times a Day, with the Hour of the Obſervations, *O. S.* in *Engliſh* Meaſure. He refers for the Deſcriptions of his Barometer and Thermometer to the Diary 1727. The Winds, with the Degree of their Strength, Weather, and Depth of Rain, are alſo ſet down.

In that from *Upſal* in *Sweden*, by Mr. *Andrew Celſius*, *Aſtr. P. R.* and *F. R. S.* Obſervations are made three times a Day, of the Barometer and Thermometer, both which Inſtruments were made by Mr. *Hauksbee*; the Winds, with their Strength, and the Weather, and Depth of Rain, from time to time.

That from *Svenaker* in *Sweden*, near *Trollhetta*, by *Torſtanus Waſſenius*, *V. D. M. &c.* contains the Height of the Barometer twice a Day, ſometimes three times, *O. S.* in *Swediſh* Feet and Inches and Decimals, which being ſuppos'd to be in Proportion to *Engliſh* as 974, 375 to 1000, the mean Heights are reduced in the Tables following into that Meaſure. The Winds alſo, with their Strength, are noted, and the Weather. There is no Thermometer. Notice is taken of Thunder Storms, and other Meteors *.

That from *Lunden* in *Sweden*, by Mr. *Conrad Quenſel*, Math. Prof. in Acad. *Carolina*, contains Obſervations of the Barometer twice a Day, *O. S.* in *Engliſh* Inches and Decimals, and 4ths of them; the Winds, with their Strength, and the Weather. The Thermometer is *Florentine*, and therefore the Obſervations not inſerted in the Table. The monthly Mean there given, is taken ſimply between the two Extremes: I have given it in the Tables taken the other way, as all the reſt are.

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* *Note*, In the Account of the *Swediſh* Diaries 1728, *Svenaker* is ſaid to be 109 *London* Feet above the Surface of the Sea. The mean Height of the Barometer there in theſe two Years is but 29 Inches, 47, which would give the Height of the Place near 450 Feet, according to the Reckoning hereafter in this Paper; therefore I think there muſt be ſome Miſtake. Perhaps ſome Air might have got into the Top of the Tube, or the Scale placed too high.

That from *Bygdea* in *Sweden*, by Mr. *John Telinus*, Paſtor there, has Obſervations of the Barometer twice a Day, Morning and Evening, *O. S.* in *Engliſh* Inches and Decimals; the Winds, with their Strength, and Weather. The two laſt Months are wanting. There is no Thermometer.

That from *Betna* in *Sudermanland*, by Mr. *And. Geringius*, Paſtor and Provoſt, has Obſervations of the Barometer thrice a Day, except in the firſt Part of *January*, *O. S.* in *Engliſh* Inches and Decimals; the Winds, with their Strength, and Weather, with other Meteorological Obſervations, and upon the Seaſons, as to Fruitfulneſs and Sterility, *&c.* The *Aurora Borealis* is frequently mention'd. The Thermometer is peculiarly graduated, and ſo could not be inſerted. There is a Column for Rain, with Marks, which I underſtand not.

From *Wittemberg* in *Saxony*, there are two Diaries communicated, one from Mr. *Mat. Haſius*, Math. Prof. the other from Mr. *J. Fred. Weidler*, LL. B. and *Math. Prof. Primar.* That by Mr. *Haſius* has the Height of the Barometer ſeveral times a Day, ſometimes four or five times, *O. S.* in *Engliſh* Inches and Decimals, and the Parts of theſe in vulgar Fractions, but are reduc'd to Decimals in the Tables. He uſed two Barometers and Thermometers. Thoſe mark'd I, are Mr. *Hauksbee*'s, thoſe mark'd II, *Florentine.* The coldeſt Day he ever obſerved, was *February* the 5th 1726. It contains alſo the Winds, with their Strength, and Weather. Mr. *Weidler* gives the Height of the Barometer three times a Day, *N. S.* in *Paris* Inches and Lines, and the Parts of theſe in vulgar Fractions; the Winds alſo, with their Strength, and the Weather, and Quantity of Rain, in Cubes and Lines, but at the End of each Quarter the Depth is given in *Paris* Inches and Lines. The Thermometer is Mr. *Hauksbee*'s. There are ſome Aſtronomical Obſervations of Eclipſes, *&c.* He takes Notice, that an Occultation of *Venus* by the *Moon*, obſerv'd with a Teleſcope of 18 Feet, may ſerve to prove the *Moon* to have an Atmoſphere; for being then in its Quadrature with the *Sun*, it appear'd to loſe its Cuſps, and become oval, when it came near the *Moon*. I have in theſe two Years made uſe of Mr. *Haſius*'s Barometrical and Thermometrical Obſervations, being in the *O. S.* and *Engliſh* Meaſure, though the three laſt Months of 1730 are wanting. The Depth of Rain is taken from Mr. *Weidler*, and reduc'd out of the *Paris* to *Engliſh* Meaſure, being ſuppos'd to be as 1068 to 1000, but is not reduc'd to the *Old Style*. Mr. *Weidler* refers to his Diſſertation upon Meteorological Obſervations ſent to the Society. The Year 1730 he obſerves to have been more than had been known wet and cold, and the Sky very miſty.

That from *Padua*, by the Marquis *Poleni*, ſhews the Height of the Barometer once a Day, *O. S.* in *Engliſh* Inches and Decimals; the Winds, and ſometimes their Strength, and Weather. A particular Account of his Thermometer has been publiſh'd formerly in the *Tranſactions*, and alſo his Obſervations upon his Diaries, containing in the whole ſix Years. (*Tranſ.* Nº 421). The Depth of Rain is given both for the *Old* and *New Style*.

That from *Bengal*, by Mr. *Bellamy*, Preacher to the Factory, has the Height of the Thermometer twice a Day, Morning and Evening; the Winds,

with

with their Strength, and the Weather, for the Year 1730. The Medium of the Thermometer is taken from both the Evening and Morning Heights, the Difference there being very great in Proportion between Morning and Evening.

That from *Boſton* in *New-England*, by *Paul Dudley*, Eſq; F. R. S. ſhews the Weather three times a Day, and Wind once or twice. No Barometer or Thermometer.

There is one of the Year 1729, ſeems to be *Swediſh*; but finding neither the Author's Name nor Place, I have not inſerted it.

In the Year 1730, thoſe from *Crane-Court*, *Southwick*, *Kent*, *Hudickſvall*, *Oſtrogothia*, *Upſal*, *Svenaker*, *Lunden*, *Betna*, *Wittemberg*, *Padua* and *Boſton*, are continued in the ſame Manner. There is none from *Bygdea*. The *Abo* Obſervations for the Year 1730, by Mr. *D. Sporing*, ſhew the Height of the Barometer twice a Day, in *Swediſh* Inches and Decimals, but the mean Heights are reduc'd to *Engliſh* in the Tables. They ſhew alſo the Winds and Weather, and in the laſt Column the *Auroræ Boreales*, which are frequent in moſt Months of the Year.

That from *Naples*, by *Cyrillus*, ſhews the Height of the Thermometer, which is Mr. *Hauksbee*'s, once a Day. The Winds, with their Strength, and Weather, and Depth of Rain in *Neapolitan* Meaſures, 23 of which make a *London* Inch, and are reduc'd thereto in the Tables. The Barometrical Heights he has not ſet down, becauſe he found them not to agree with thoſe of former Years, which made him ſuſpect his Inſtrument to be out of Order; but as it appears he had remov'd his Habitation, it might be owing to its being ſituated higher or lower than the former. An Eruption of *Veſuvius* happening, an Account is given of it, and of Damage done by Lightning, and alſo of the Seaſons, as to Fruitfulneſs and Healthineſs. (See *Tranſ.* N° 424).

Note, In ſome of the Diaries, the Numbers ſhewing the Decimal Parts of the Inches, are ſet down in ſingle Figures, without any Rule or Cypher to diſtinguiſh them from the Centeſimals, and in others the Centeſimals in like manner; but 'tis eaſy to make a Judgment of the Author's Method by Conſideration of them.

Having given an Account of the Method and Contents of the ſeveral Diaries, I now proceed to the Tables extracted out of them. The Barometrical Table conſiſts of two Parts: The Upper ſhews the mean Height of the Barometer, taken in the Method propos'd formerly by Dr. *Jurin*, for every Month throughout the Year, for each Place; and in each Column the higheſt Month is mark'd with an *h*, the loweſt with an *l*, to make them more obſervable to the Eye. At the Bottom, the Mean of the whole Year is ſet down for each Place. At the Foot of this Table is another, ſhewing the greateſt Aſcent and Deſcent of the *Mercury* in that Year, with the particular Day of each, the Difference of which is the Range: Which Circumſtance Dr. *Derham*, and other Obſervers, have uſed generally to take Notice of.

Next follows the Table of the monthly Thermometrical Heights, extracted in Dr. *Jurin*'s Method alſo, in every Place where the Society's Inſtruments were uſed; and at the Bottom the Mean of the whole Year, and alſo the hotteſt and coldeſt Day in each

Place. In the laſt Place, the Tables of the Depth of Rain, where it is contain'd in the Diaries.

I choſe to put each of theſe Matters in ſeparate Tables, that the Eye may be able to take a View of the Whole, and compare the State of each Place with the others, as to each Particular, with leſs Confuſion, as alſo becauſe ſeveral of the Diaries have nothing upon one or more of theſe Heads.

Note, The mean Heights of both Barometer and Thermometer are extracted only from the Morning Obſervations, ſome of the Diaries containing no more; and judging it ſufficient to the preſent Deſign of theſe Tables, except in the mean Heights of the Thermometer at *Bengal*, which are taken from both Morning and Evening Obſervations.

A Table *of the monthly mean* Barometrical *Heights, and also of the greateſt Aſcents and Deſcents of the* Mercury *obſerved in ſeveral Places, in the Year* 1729, *in Inches and Decimals.*

A.

1729.	*Crane-Court, London.* Lat. 51° 31	*Southwick* in *Northamptonſh.* Lat. 52° 54	In *Kent.* Lat. 51°	*Hudickſvall* in *Sweden.* Lat. 62°	*Oſtrogothia* in *Sweden.* Lat. 56°	*Upſal* in *Sweden.* Lat. 59 48
January	30 08	29 70	29 41 h	29 49	29 20 l	29 43 l
February	02	66	37	30 02	576	92
March	29 93	54	37	29 63	27	55
April	93	60	26	30 04 h	62 h	30 16 h
May	95	57	29	29 82	38	29 71
June	30 07	69	36	86	35	74
July	29 97	64	28	69	20 l	60
Auguſt	30 09 h	72 h	38	78	35	65
September	29 69	42	09	90	42	81
October	83	52	09	55	32	54
November	61 l	32 l	28 94 l	45 l	25	54
December	83	52	29 25	75	52	79
Mean of the whole Year.	29 91	29 575	29 ,257	29 ,748	29 371	29 73
☿ Higheſt	30 55 *Feb.* 20.	30 11 *Feb.* 20.	29 90 *Feb.* 20.	30 00 *Feb.* 23.	30 35 *Feb.* 27.	30 59 *Feb.* 27.
Loweſt	28 75 *Nov.* 25.	28 48 *Nov.* 25.	28 16 *Nov.* 25.	28 43 *Oct.* 12.	28 15 *Jan.* 20.	28 70 *Jan.* 18.
Differ	1 80	1 63	1 74	2 17	2 20	1 89

C.

The foregoing Barometrical Table *continued.*

1729.	*Svenaker* in *Sweden.*	*Lunden* in *Sweden.*	*Bygdea* in *Sweden.*	*Betna* in *Sweden.*	*Wittemburg* in *Saxony*, by Mr. *Hasius.*	*Padua* in *Italy.*
	Lat. 58° 10	Lat. 55 42	Lat. 63 40		Lat 52	Lat. 45 15
January	29 44	29 42	29 18	29 77	29 83 h	29 74
February	62	54	76	30 18 h	778	725
March	28	38	41	29 84	65	66
April	65 h	57	82 h	30 17	64	85
May	44	48	61	20 89	35	67
June	56	59 h	63	88	77	74
July	43	44	50	72 l	34 l	63 l
August	52	57	57	84	79	79
September	51	44	76	92	65	65
October	37	46	33 l	76	67	75
November	18 l	33 l		75	51	64
December	53	52		99	74	89 h
Mean of the whole Year.	29 46	29 47	29 ,557	29 892	29 643	29 727
♀ Higheſt	30 41 *Feb.* 28.	30 ,40 *Feb.* 27.	30 36 *Feb.* 23	30 70 *Feb.* 18.	30 50 *Jan.* 7.	30 30 *Dec.* 20
Loweſt	28 31 *Jan.* 18.	28 23 *Jan.* 18.	28 18 *Oct.* 12.	28 75 *Oct.* 12	28 95 *Nov.* 27.	28 90 *Nov.* 10-
Differ.	2 10	2 17	2 18	1 95	1 55	1 40

D.

A Table *of the monthly mean* Thermometrical *Heights in ſeveral Places in the Year* 1729.

1729.	*Crane-Court.*	*Southwick.*	*Upſal.*	*Wittemberg.*
January	67 3	70	80	70 ,9
February	69 ,2	74	82 ,7	67 ,5
March	60 8	69	70 ,6	56 ,3
April	55 ,2	61	58 ,9	51 ,6
May	42 ,6	53	48 ,5	36 ,0
June	34 ,9	43	37 ,3	30 ,2
July	33 ,1	42	35 ,1	29 ,0
Auguſt	33 ,8	43	40 ,4	29 ,65
September	38 ,6	46	47 ,1	37 ,6
October	51 ,1	57	60 ,8	50 ,2
November	56 ,8	60	66 ,3	59 ,6
December	58 ,8	63	71 ,4	70 ,6
Mean of the Year.	50 ,1	56 ,7	57, 6	49 ,09
Thermom. Higheſt Loweſt	12 ,5 *June* 10. 80 ,5 *Jan.* 7.	13 *June* 10. 88 *Jan.* 4.	22 5. *June* 9. 97 *Jan.* 5.	14 ,75. *May* 23. 95 ,0. *Jan.* 1.

A Table *of the Depth of* Rain *which fell in ſeveral Places in the Year* 1729. *in Inches and Decimals.*

1729.	*Crane-Court.*	*South-wick.*	*Kent.*	*Oſtrogo-thia.*	*Upſal.*	*Wittemberg, Stylo Novo.*	*Padua.*
January	,739	,16	,499	,830	1 ,153		1 ,085
February	,785	,48	1 ,069	1 .050	1 ,027		1 ,245
March	1 ,125	1 ,21	1 ,286	,600	,826	,48	2 ,902
April	1 ,600	1 ,10	2 ,197	,005	,000	,905	2 ,768
May	1 ,515	1 ,55	2 ,216	3 ,865	,875	,94	2 ,634
June	1 ,200	0 ,83	,730	2 ,930	2 ,450	,815	3 ,134
July	1 ,04	2 ,26	2 ,153	1 ,615	2 ,578	1 ,31	4 ,526
Auguſt	3 ,04	2 ,44	2 ,533	1 ,405	,747	1 ,365	,578
September	3 ,505	5 ,32	2 ,343	2 ,940	2 ,687	,78	3 ,267
October	1 ,420	2 ,20	2 ,218	1 ,050	,139	1 ,43	6 ,294
Novemb.	2 ,425	4 ,18	4 ,334	2 ,150	,855	1 ,305	4 ,186
December	1 ,950	1 ,68	1 ,947	3 ,040	1 ,140	1 ,295	2 ,804
Total.	20 ,344	23 ,51	23 ,525	21 ,480	14 ,477	11 ,625	35 ,423

A Table *of the monthly mean* Barometrical *Heights, and alſo of the greateſt Aſcents and Deſcents of the* Mercury *obſerved in ſeveral Places, in the Year* 1730, *in Inches and Decimals.*

A.

1703.	*Crane-Court, London.* Lat. 51° 31	*Southwick* in *Northamptonſh.* Lat. 52° 54	In *Kent.* Lat. 51°	*Hudickſvall* in *Sweden.* Lat. 62°	*Oſtrogothia* in *Sweden.* Lat 56°	*Upſal* in *Sweden.* Lat. 59 48
January	30 ,04	29 ,79	29 51 h	29 61	29 50	29 66
February	29 ,61	39	06	50 l	29	60
March	,52 l	34 l	03 l	77	45	79
April	,90	66	37	77	52	77
May	,76	55	15	68	58	72
June	,83	60	24	75	25	75
July	,84	61	31	82	21	78
Auguſt	,94	70	39	75	38	74
September	,90	34 l	37	75	44	75
October	68	49		96 h	64	93 h
November	79	55		50 l	26 l	56 l
December	30 ,09 h	83 h		84	68 h	80
Mean of the whole Year.	29 ,825	29 ,57	29 ,27	29 ,725	29 ,455	29 ,745
☿ Higheſt	30,35 *Dec.* 1.13.	30,30 *Jan.* 10.	30,01 *Jan.* 10.	30,52 *Dec.* 1.	30,40 *Dec.* 1.	30,71 *Dec.* 1.
Loweſt	28,70 *Mar.* 8.	28,53 *Mar.* 8.	28,28 *Mar.* 8.	28,70 *Dec.* 10.	28,45 *Jan.* 18.	28,90 *Dec.* 10.
Differ.	1,65	1 ,77	1 ,73	1 ,82	1 ,95	1 ,81

C.

The foregoing Barometrical Table *continued.*

B.

1730.	*Svenaker* in *Sweden.* Lat. 58° 10	*Lunden* in *Sweden.* Lat. 55 42	*Betna* in *Sweden.* Lat. 58 49	*Abo* in *Finland.* Lat. 60 40	*Wittemburg* in *Saxony,* by Mr. *Haſius.* Lat 52	*Padua* in *Italy* Lat. 45 15
January	29 39 l	29 57	29 96	29 68	29 823 h	29 88
February	46	23 l	81	435	428 l	55
March	42	34	97	61	48	46 l
April	59 h	56	30 03	705	677	69
May	54	46	29 89	55	99	67
June	53	55	89	60	667	67
July	40	51	87	665	671	69
Auguſt	53	59	89	56	776	80
September	48	57	30 04	30 05 h	80	82
October	56	61	11	29 76		72
November	46	30	29 74 l	355 l		76
December	43	65 h	30 12 h	68		96 h
Mean of the whole Year.	29 ,48	29 ,495	29 ,943	29 ,637	29 ,701	29 ,705
☿ Higheſt	30 ,42 *Dec.* 1.	30,22 *Dec.*1.13.	30 ,98 *Dec.* 1.	31 ,20 *Dec.* 1.	30 ,37 *Jan.* 30.	30 ,40 *Dec.* 20.
Loweſt	28 ,43 *Dec.* 10.	28,61 *Dec.* 31.	28 ,96 *Dec.* 10.	28 ,64 *Nov.*23.	29 ,00 *Feb.* 27.	28 ,98 *Feb.* 27.
Differ.	1 99	1,61	2,02	1,56	1 37	1 42

D.

A Table *of the monthly mean* Thermometrical *Heights in ſeveral Places in the Year* 1730.

1730.	*Crane-Court.*	*Southwick.*	*Upſal.*	*Wittemberg.*	*Naples.*	*Bengal.*
January	67 9	69	74	72	50 5	30
February	63	68	72	67	48 3	22 ,4
March	56 ,27	62	74 5	60	40	6 ,9
April	50 2	58	56 2	48	40	4 ,0
May	41 30	49	42 4	35	40	5 2
June	37 7	46	29 9	29	19 5	5 3
July	35 22	42	21 90	26	16 7	8 ,8
Auguſt	33 8	44	34 05	29	14 2	9 ,4
September	39 8	47	50 21	40	22 6	6 ,2
October	50 1	55	62 20		29	14 ,4
Novemb.	55 5	59	72 27		40 1	23 ,4
Decemb.	49 51	70	73 10		49 9	32 ,3
Mean	48 35	55	55 22		34 3	14 ,02
Higheſt	10. 5. *July* 25.	16 *July* 24.	9. 1. *July* 27.	11. *July* 25.	9. *Aug.* 17.	0 *Jan.*
Loweſt	77. 5. *Jan.* 7.	83 *Dec.* 14.	86. 7. *Mar.* 16.	81. 50. *Jan.* 15.	60. *Jan.* 10.	40 *Dec.*

A Table *of the Depth of* Rain *which fell in ſeveral Places in the Year* 1730. *in Inches and Decimals.*

1730.	*Crane-Court.*		*South-wick.*		*Kent.*		*Oſtrogo-thia.*		*Upſal.*		*Wittemberg, Stylo Novo.*		*Naples.*		*Padua.*	
January		450		45		624		795		164		78	3	89		112
February	1	230	1	53	2	054		870		412	1	68	1	434	2	906
March	3	595	2	61	4	067	2	730	1	983	2	86		739	4	592
April		,670		84		985		605		165	1	98	2	39	1	638
May	1	755	2	5	1	805	2	260	4	120	3	23	1	39	4	467
June	3	755	3	39	2	876	1	535		755	2	31	1	00	6	505
July	2	390	1	93	2	598	2	445	1	904	2	01	2	173	2	339
Auguſt		020	0	85		131		505		525	3	07	0	0	4	269
September	2	100	1	65	2	043	3	140	1	579	2	16	2	67	1	090
October	2	460	2	94	2	424	1	670	1	103		61	2	52	5	254
Novemb.	1	570	1	93	2	065		915		831	2	97	2	91	0	534
December	1	500		81	1	322		890	1	105	2	09	3	22	0	894
Total.	21	,495	21	,0	22	,924	18	,360	14	,646	25	,75	24	,336	34	,300

Firſt, I obſerve upon the Barometrical Tables of theſe two Years, that they confirm former Remarks made by Dr. *Derham* and others, of the Conſent of the Barometers in Places at a good Diſtance from each other. Not only the monthly mean Heights agree in the three Diaries of theſe two Years here in *England*, but alſo the greateſt Aſcent and Deſcent of the *Mercury* happen commonly on the ſame Day, and the Barometers have been found to agree in their Motions to an Hour, ſo far aſunder as *Townly* in *Lancaſhire*, and *Greenwich* near *London*, which is near 160 Miles, although that might be partly accidental. The Barometer at *Crane-Court* and *Southwick*, diſtant about 55 Miles, being compared, ſeem very ſeldom to vary from their mean Difference above $\frac{1}{10}$ and $\frac{1}{2}$ each way; at *Southwick* and *Kent* ſomething more. From whence it might be expected, that the Weather ſhould be much the ſame in all theſe Places; which nevertheleſs ſeems not to agree with Accounts in ſome Years from different Parts in this Iſland, not very far diſtant: And I myſelf have obſerved ſometimes Clouds to lie in one Part of the Horizon for a great Part of a Day, which have diſcharg'd a large Quantity of Rain in Places not far off, while the Place, where I have been, has all the while enjoy'd fair Weather, and *vice verſa*. Whence it appears, that the Barometrical Alterations of the Air extend farther than their Effects, as to the Production of Rain, at thoſe times. Comparing the Diaries of *Crane-Court* and *Upſal*, I find the Barometers vary from their mean Difference an Inch and half each way; *Crane-Court* and *Padua* as much, or more, and often go a pace quite contrary ways at the ſame time, and their monthly Differences are alſo very variable, ſo that their Agreement at any time ſeems to be but accidental.

Secondly, I obſerve, that the Deſcents of the *Mercury* below the mean Heights of each Place, taken in this way of Dr. *Jurin*'s, are generally much greater than the Aſcents of it above; and there are alſo other extraordinary Deſcents of the *Mercury* in every Year, of the ſame kind. The Reaſon I take to be, becauſe the Expanſion of the Air, whereby it becomes lighter in ſome one Place, being the Original of the Alterations in the Atmoſphere, its Effects by Condenſation or Accumulation of the Air in the Places round about will be more diſperſed, and therefore leſs ſenſible.

Thirdly, The Variation or Range is greater the farther North, as has been heretofore obſerved, and appears in theſe Tables, in which I have put the Latitude of each Place; and likewiſe 'tis greater generally in the Winter than Summer Months. The Sum of the Motion of the *Mercury* upwards and downwards, taken from the *Berlin* wandring Line, with a Pair of Compaſſes, in the Year 1726, amounts to about 76 Inches, which gives 5 $\frac{1}{3}$ for a Month, and about 0,21 for each Day. But the Barometer is by much moſt ſteady in the Summer.

Fourthly, The mean Height of the Barometer hath already been apply'd to determine the reſpective Heights of Places, and alſo the abſolute Height above the Surface of the Sea. Dr. *Scheuchzer*, in his Tables publiſh'd in the *Tranſactions* of this Society, N° 405, 406. ſuppoſes, from Mr. *Marriot*, the mean Height at the Surface of the Sea to be 28″ 1‴ *Paris* Meaſure, which reduced to *Engliſh*, gives 29 Inches, 993. This agrees very well with a Diary communicated to the Society, containing 10 Months of the Year 1723, and *January* 1724; the Author of which found by Experiment, that in the Place where his Barometer was kept, the *Mercury* ſtood $\frac{1}{10}$ and $\frac{1}{2}$ higher than at the Surface of the Sea, which was not far from his Habitation. The mean Height of the Barometer for thoſe 10 Months (leaving out the *January* following, which ſeems to be a very irregular Month) I find to be 29, 825, to which adding $\frac{1}{10}$ $\frac{1}{2}$, it will give the mean Height at the Surface of the Sea 29, 975; ſo the Difference between theſe is only ,018, and therefore probably may be near the Truth, but may hereafter be more exactly determin'd by Experiments. Then allowing about 90 Feet, or rather leſs, for each 10th of an Inch in Height of the *Mercury* in ſmaller Altitudes, or in greater according to the Tables calculated for that Purpoſe, by Dr. *Scheuchzer* and Dr. *Nettleton*, and publiſh'd in the *Tranſactions* of this Society, *l. c.* & N° 388. you will have the Height of each Place pretty near, provided the Obſervations be carefully made, and continued for a ſufficient Time; for the yearly mean Heights in one of the Places in theſe Tables appear to differ near $\frac{1}{10}$ of an Inch in theſe two Years; and in moſt of them, the laſt of theſe two Years exceeds the firſt, two or three Hundredths: The Barometer alſo ought not to be remov'd to a lower or higher Place.

Upon the Thermometrical Tables, and thoſe of the Rain, I have at preſent no Remarks to make, but what are obvious on firſt Sight; only that the Thermometers agree, eſpecially as to the hotteſt Days in the

Year, more than might be expected from Places at ſuch a Diſtance.

The Winds are of ſo uncertain and variable a Nature, that they require a more than ordinary Care and Diligence in making the Obſervations, and a great Length of Time, and Compariſon of a vaſt Number of them, before any thing can be deduced more than is commonly known; and therefore I ſhall not endeavour to do it at this Time, but only give this Hint, that if the Obſervers would take particular Notice, in great Storms, of the Time when the *Mercury* firſt begins to riſe, whether before, or after, or in the very Height of it, it might be a Direction to judge when an Abatement or Increaſe of it might be expected, (if any regular Order ſhould be found therein) which might be ſerviceable on ſome Occaſions. But if any Attempt ſhould be made to lay down any thing certain concerning the Riſe and Progreſs of the variable Winds, it will appear, by conſidering the Cauſe of the Trade-Winds, that for the ſame Cauſe the Motion of the Air will not be naturally in a great Circle, for any great Space, upon the Surface of the Earth any-where, unleſs in the Equator itſelf, but in ſome other Line; and, in general, all Winds, as they come nearer the Equator, will become more and more eaſterly, and as they recede from it, more and more weſterly, unleſs ſome other Cauſes intervene.

Theſe are all the Obſervations I have at preſent to offer on this Subject, which I ſhould have been glad if they had been more material, and anſwerable to the Labour beſtow'd by the curious Obſervers; but they may aſſure themſelves, that the Diaries communicated to the Society will be carefully preſerved, for the Peruſal of thoſe who may be inclin'd to inquire farther into this Part of Nature; and perhaps by the Continuance of this Method, in Proceſs of Time, a Diſcovery may be made of ſome regular Courſe in theſe Things, which may be of Uſe.

VII. *A* Collection *of the Obſervations of the* Solar Eclipſe, Feb. 18. 1736-7. *ſent to the* Royal Society.

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1. *The* Sun's *Eclipſe on* February 18. 1737. *obſerved in* Fleetſtreet, London, *by Mr.* Geo. Graham, *F. R. S.*

	Apparent Time.			
	Ho.	Min.	Sec.	
At	2	25	9	P. M. a ſmall Impreſſion appear'd on the Sun's Limb; I judge the Beginning to have been about five or ſix Seconds ſooner.
	3	21	28	The Middle of the firſt and larger Spot was cover'd.
		29	30	The Middle of the ſmaller Spot.
		40	4	The Cuſps perpendicular.
	4	3	34	The Cuſps horizontal.
		35	32	The Middle of the larger Spot emerged.
		38	21	The ſmaller emerged, or a little before.